

This fully integrated, multi-loop PID solution combines temperature and smart power control in one compact unit, eliminating separate controllers and excessive wiring.

With four independent loops and direct Ethernet connectivity, the PowerNode device reduces build time, wiring complexity, and panel footprint for faster, error-free installations.

Key Value Highlights

- Simplifies control and panel layout by merging temperature and power management—fewer parts, fewer wires, less risk of miss-wiring.
- Accelerates build time and cuts component costs with integrated switching and fan-cooled triac outputs up to 10A per loop.
- Supports flexible mounting inside or outside enclosures, reducing wire runs and placing control closer to heaters and sensors.
- Daisy-chained Ethernet enables easy supervisory control and inter-module communication for advanced automation.
- UL508A rated for safe, compliant installations

Features and Benefits

Advanced Measurement and Protection

Comprehensive Monitoring: Measures line voltage, load temperature, load current and voltage, and detects ground faults (GFEP).

- Enhances equipment safety and reliability by providing complete visibility into electrical and thermal conditions while ensuring proactive protection against faults.

Seamless Connectivity

Modbus®TCP, EtherNet/IP™ and EtherCAT® Integration: Process data is accessible via Modbus®TCP, Ethernet/IP™ or EtherCAT®, supporting remote monitoring, operation, and automation system integration.

- Enables fast, flexible connectivity for real-time control and diagnostics, streamlining integration with industry-standard automation platforms.



Flexible Power Options

Power-over-Ethernet (PoE) or Direct Supply: Electronics can be powered using PoE or a conventional power supply.

- Simplifies installation and reduces cabling requirements, offering deployment flexibility in a wide range of environments.

Enhanced Thermal Management

Fan-Cooled, Touch-Safe Heat Sinks: Internal heat sinks are fan-cooled and designed to be touch-safe; fans are managed for extended life and communicate failures.

- Consistent and safe operation with early warning of fan issues, minimizing downtime and maintenance.

Configurable Output & Alarming

Mechanical Relay Outputs: Provided for alarms and other user-defined functions.

- Customizable alarms and controls enable fast response to system events and support tailored functionality for different applications.

User-Friendly Operation

Optional On-Board Interface: Simple local interface to configure basic parameters.

- Streamlines setup and parameter changes, making it easy to commission and adjust settings without specialized tools.

Comprehensive Diagnostics

Advanced Fault Detection: Includes device ambient temperature monitoring, over-temperature alarms, partial load failure detection, loss of line voltage, shorted and open load detection.

- Rapid identification and reporting of system issues boosts uptime, improves maintenance response, and protects valuable equipment.

Specifications

Line Voltage/Power

- 100V to 240V @ 47 to 63Hz

Power Switching Outputs

- Four triac outputs
- Zero-cross time-proportioning and variable time-base burst-fire switching
- 10 A max @ 240 V @ 0°C to 55°C
- 8 A max @ 240 V @ 65°C

Controller Electronics Power

- Power over Ethernet (PoE) 802.3bt (backwards compatible with 802.3at and 802.3af)
- Power for setup via USB C from PC
- Data retention upon power failure via non-volatile memory
- Power consumption: 7 W, 14VA
- Wired power connection: 20.4 to 30.8Vdc, 50/60Hz, $\pm 5\%$
- External power supply used should comply with a Class 2 or SELV rating. (Safety Extra Low Voltage)

Sensor Inputs

- Type K thermocouple, grounded or ungrounded
- Functional Operating Range: -454 to 2500°F (-270 to 1371°C)
- Open sensor detection

Electromechanical Relay Outputs

- Four electromechanical relay outputs
- Form A, 5A, 24 to 240VAC or 30VDC max., resistive load, 100,000 cycles at rated load, requires a min. load of 20mA at 24V, 125VA pilot duty

Closed Loop Control

- Four independent loops of PID or on-off control
- Autotuning

User Interface

- Mini display for local status/configuration

Connectivity

- Ethernet (Modbus TCP and OPC-UA compatible) 10/100 with DHCP and fixed IP addressing
- EtherCAT
- Inter-module bus over Ethernet and serial
- USB for setup

Diagnostics

- Line voltage measurement on each loop
- Load voltage measurement on each output
- Load current measurement on each output
- Load resistance measurement on each output
- Ground fault detection for equipment protection
- Partial load failure detection
- Open load detection
- Shorted output detection
- Heatsink ambient monitoring and overtemperature detection

User Programmable Function Blocks

- Alarm (Analog): 16
- Alarm (Discrete): 16
- Compare: 20
- Control Loops: 4
- Counter: 12
- Logic: 10
- Math: 8
- Process Value: 8
- Timer: 24
- Linearization: 1
- Variables: 10

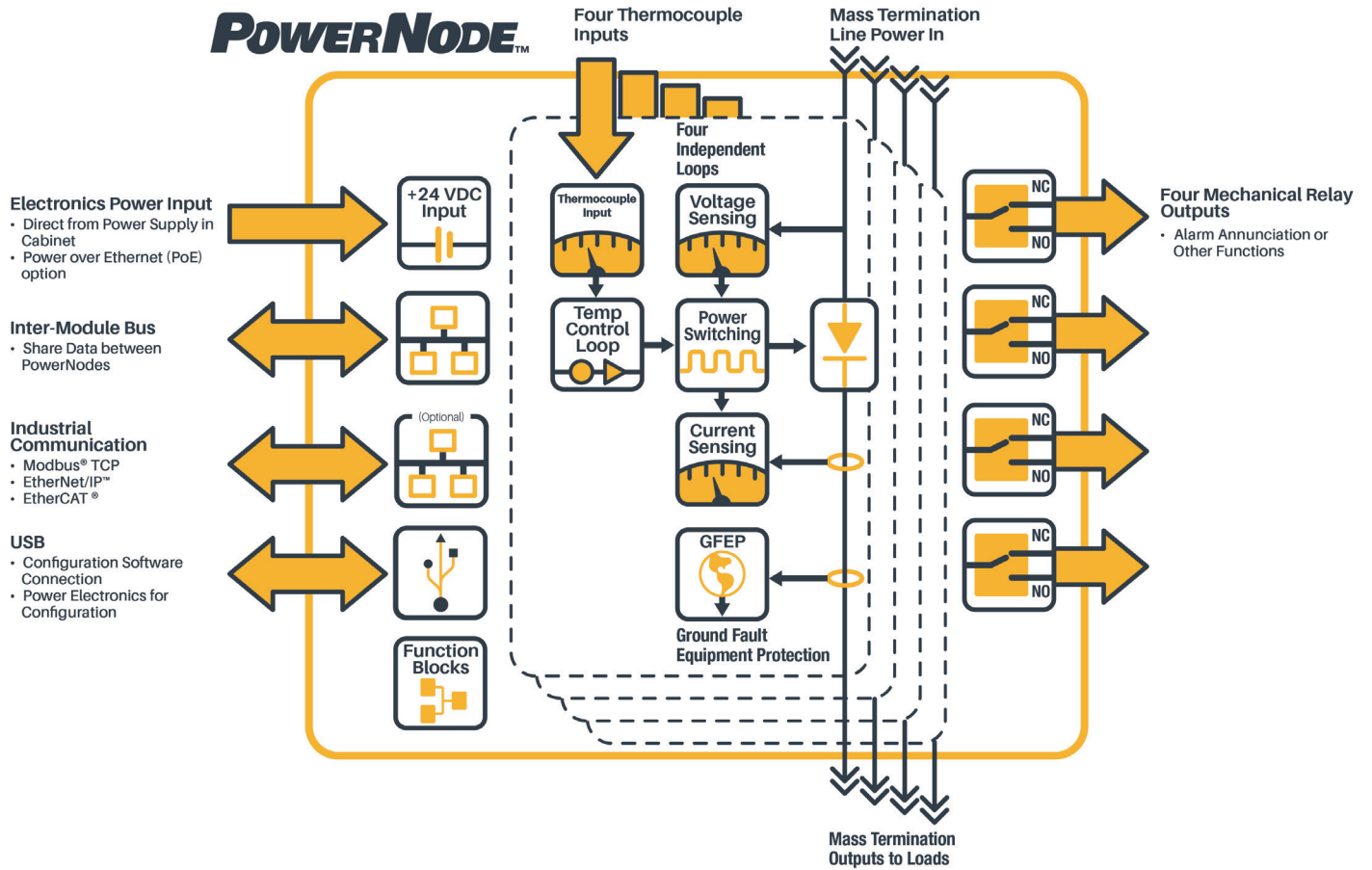
Mounting

- Panel mount or stand-alone, touch-safe
- Internal fan, contained heatsink, touch-safe design

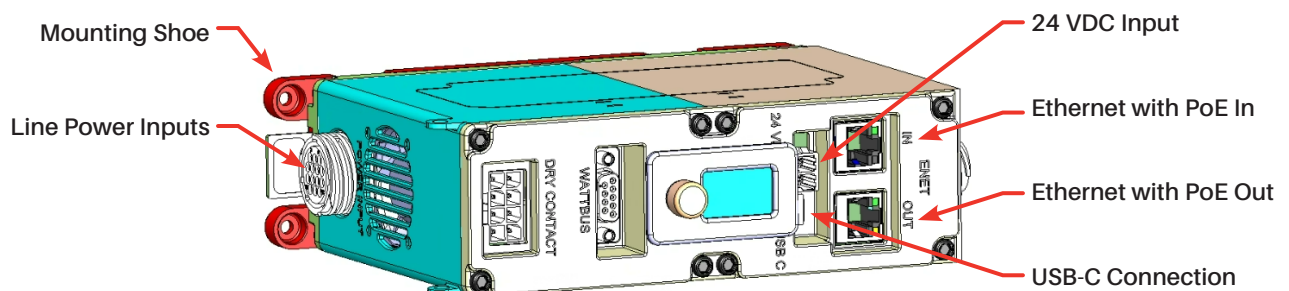
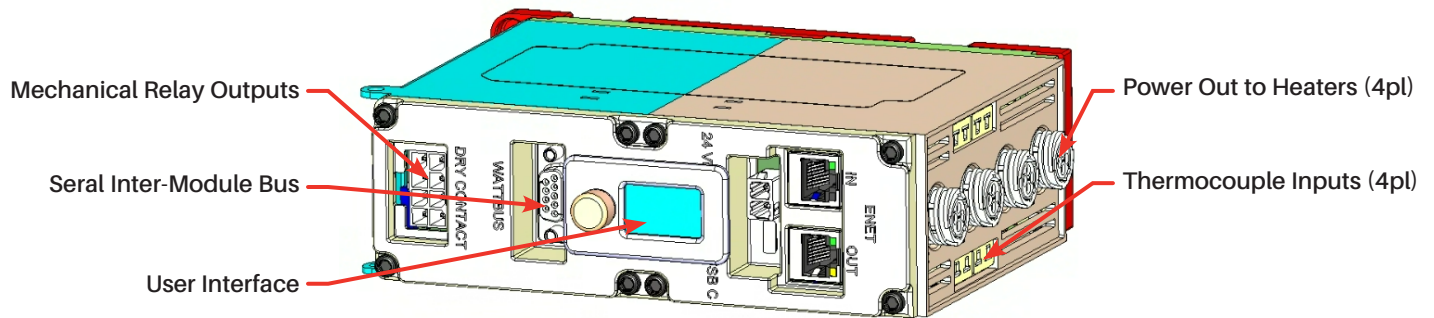
Environmental

- Maximum operating temperature: 65°C
- Altitude de-rating 2% for every 100 m above 1000 m

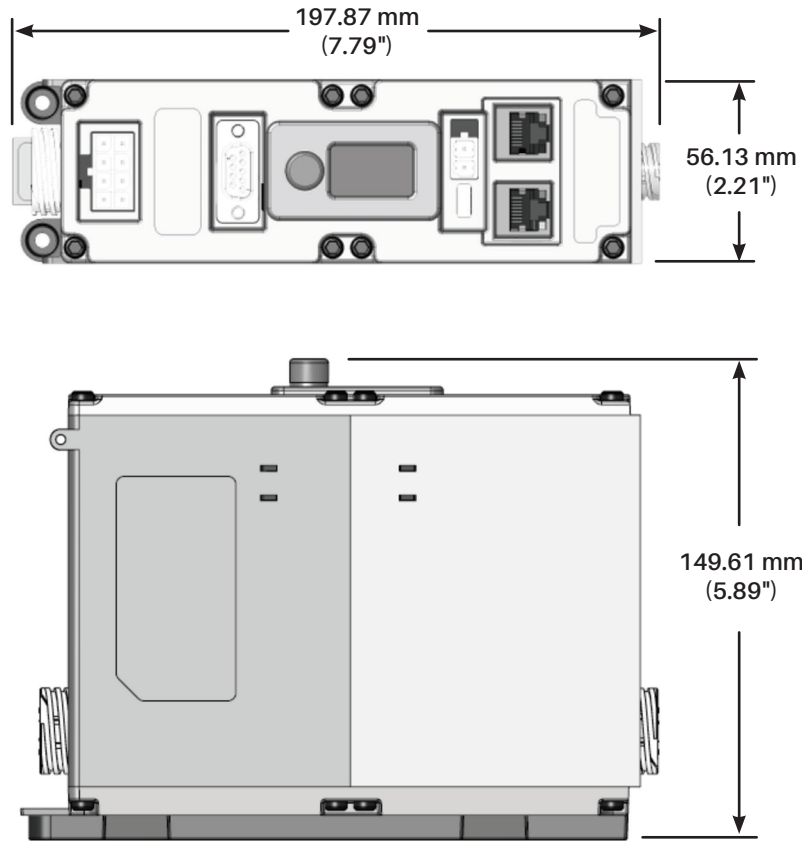
I/O Functional Block Diagram



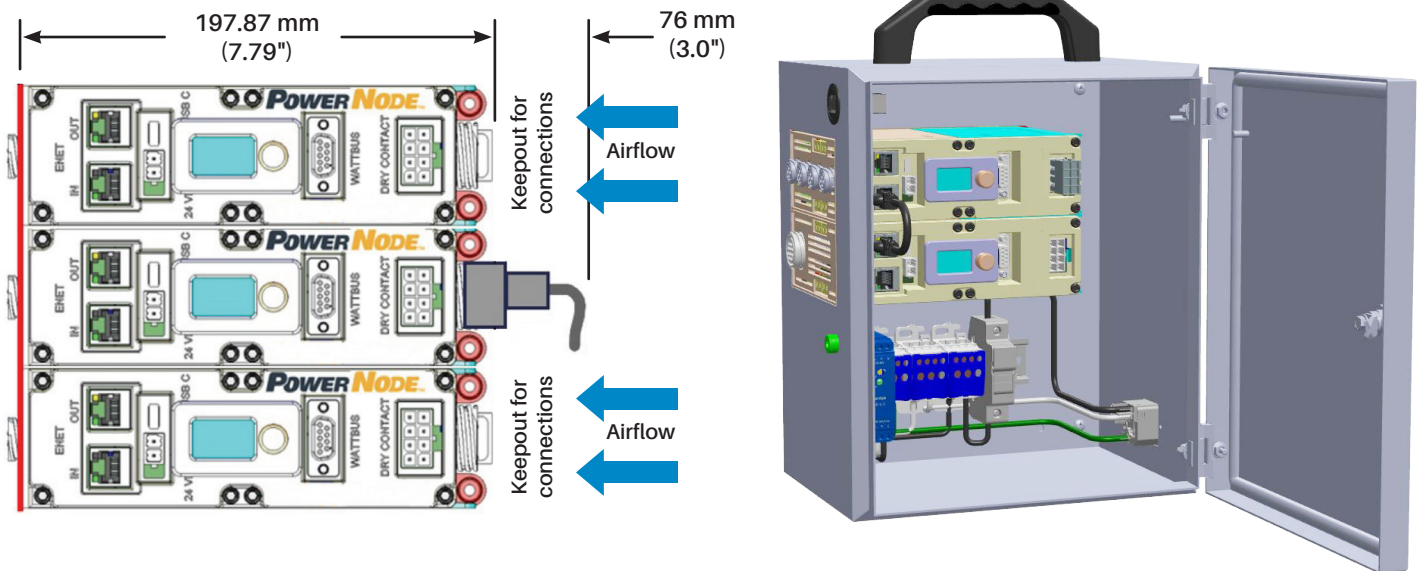
Physical Features



Dimensions



In-Panel, Through Wall Mounting



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